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Chemical Reactions Notes

What the heck is a chemical reaction?

Most often, in nature, elements are not found in their pure form. They have gone through chemical reactions and formed chemical bonds with other atoms in order to feel stable. When this chemical reaction is finished, the atoms have now formed one or more new substances.

When atoms change or rearrange or form new bonds with other atoms a chemical reaction has occurred.

Chemical reaction – when atoms change, rearrange, break, or form new bonds with other atoms.

- The result of a chemical reaction is that the original substances have formed one or more new substances.

How do I know a chemical reaction when I see one?

There are several indicators that can “tip you off” that a chemical reaction is occurring:

1. A Precipitate is Formed - A **precipitate** is a solid that forms in a solution. Most often a precipitate is seen when two liquids are mixed together and a solid appears. Seeing a solid appear when you are mixing two liquids together is not very common, and so it is a good indicator of a chemical reaction.

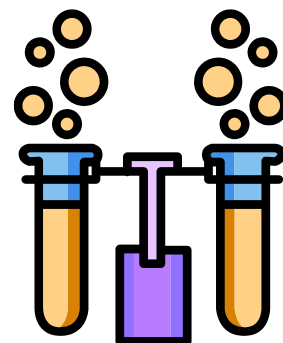
2. Energy is Released (or Taken In) – When a chemical reaction happens, chemical bonds are broken or made. This either gives off or takes in energy. Explosions, heat given off, and light given off are indicators of chemical reactions giving off energy. Something getting cold for no apparent reason (like a cold pack for an injury,) is a reaction taking in energy.

Reactions that give off energy are called **exothermic**. Ex. explosions, burning paper, respiration, glow sticks

Reactions that take in energy are called **endothermic**. Ex. taking a picture, cooking, Alka-Seltzer in water, photosynthesis

3. A Gas is Released (Bubbles and Fizzing) – If a substance is bubbling or fizzing, a chemical reaction may be taking place. (Strange smells may result. Eww!)

4. Color Change – When two things are put together and a new color results, a chemical reaction may be happening. However, this is not the best indication that a chemical reaction is taking place, since other things can cause a color change.



How a chemical reaction is written.

The substances that react with each other in a chemical reaction are called the **reactants**.

The new substance(s) that are made after a chemical reaction is over are called the **products**.

In between the reactants and the products is an arrow called a yield sign. Like so:

